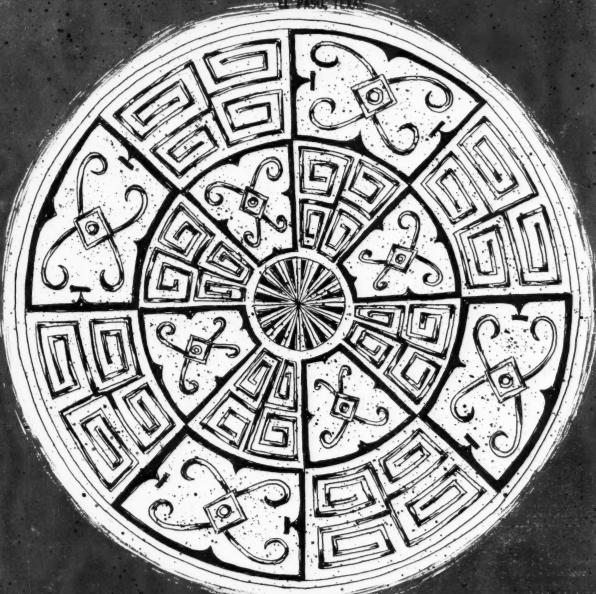
Ceramics MONTHLY



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The authoritative text is illustrated with 700 sketches and plates in full color showing examples from Bysantium, China, France, Pompeii, Persia and many others. Extensive bibliography and detailed index included. 6" x 91/2" format, 184 pages, cloth bound.

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by Suzanne E. Chapman

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by Frances Johnson

A designer and potter, the author presents 350 designs, many in full size, with suggestions for proper colors. Oversize format $(10'' \times 13'')$, 72 pages, paper bound. \$3.00

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by Clarence Hornung

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Ceramics

Volume 2, Number 4

APRIL • 1954 50 cents per copy

in this issue

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HOUSE OF GLAZES The Usual and Unusual

letters

New Use for Binder

Gentlemen:

Here is an additional CERAMICS MONTHLY binder. additional use for the

The metal retaining blades in the binder are exactly the size and shape of a twelve-inch hacksaw blade. By using the saw-blade as a retaining rod, one's favorite catalogue or folder may be kept handy for reference in the front of the binder.

RALF PADDOCK

Prairie Pottery Frankfort, Ind.

Frame Source

Gentlemen:

In a recent issue (October) someone asked where he could obtain picture moldings made especially for 1/4-inch tile. Readymade frames are available from the Pemco Corporation, Pottery Arts Supply Division, Baltimore 18. They have them for the 41/2inch and 6-inch tiles. I thought your readers would appreciate this information.

(SISTER) M. EUGENE

St. Mary of the Springs Columbus, Ohio

How About Framels?

Gentlemen:

. The interest in enameling is growing by leaps and bounds. It was difficult enough when I was called upon to teach ceramics without the necessary background . . . and now I am facing the same problems with enamels. It's time you started covering enamels with elementary and advanced articles as you have been doing with ceramics . .

(MRS.) IRVING HARRIS

GEORGE FADDIS

Boston, Mass.

Gentlemen:

. . . Your magazine is doing a fine job, however, considering the number of enamelists I have talked to, who subscribe, we feel that this phase of ceramics is being slighted .

[Many of your articles] have been exceptionally fine; the concepts presented would be helpful in any medium. Remember, however, while we are interested in clay ceramics, we have no magazine to champion our cause. It's up to you.

New Castle, Pa.

 Articles on enameling are in the works. Hold fire, please .- Ed.

Enlightenment

Gentlemen:

. . . Many thanks to Rev. Kring for en-lightening us [Contemporary Japanese Ceramics, February] . . Although I have no argument with the brand of pottery advocated by Leach and Hamada, I feel it is important to know that this is not the only type of work being done in Japan today, as we had been led to believe . . . It was thoughtful of Mr. Kring to allow us stayathomes to enjoy his visit; and thoughtful CERAMICS MONTHLY to publish his article "putting us wise" JANET PEARLMAN

Brooklyn, N. Y.

Gentlemen:

Mr. Kring's article . point and has tremendous insight . . . It

certainly clarifies many questions potters in this country have been discussing as a result of Mr. Leach's recent visit . . .

OLIN RUSSUM Monkton, Md.

Gentlemen

. . . Mr. Kring is also an excellent photographer. You will be interested to learn that one of the color photos he took of Hamada in Japan was awarded an honorable men-tion in the World Travel Photography Con-test sponsored by the Saturday Review . . . Prizes and honorable mentions were given to only 129 of the more than 30,000 photos entered .

Buffalo, N. Y.

Rent Wrinkle

Gentlemen:

Your film list (January) was helpful to me. . . . but it could have been more so. It wasn't made clear exactly how the rental charge works. Is time in transit considered "rental time?"

H E MORELAND

WILLIAM FLETCHER

San Francisco, Cal.

· Time in transit (both ways) is not charged for in the rental fee. The film companies rely on the integrity of the users to return the film immediately after it has been shown -- Ed

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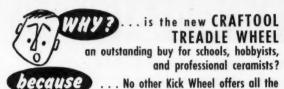
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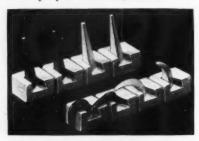
NEW CONE PLAQUES for setting small cones (1½") have just been announced by the Edward Orton, Jr. Ceramic Foundation, Columbus, Ohio. The plaques are so designed that the cones can be embedded only to the proper depth and to sit at the proper angle.

The plaques are sufficiently refractory for firings up to cone 20. They hold 4 cones each; however, they may be broken apart on scored lines to hold

If you have a product or a service you feel will be of interest to the readers of "Ceramics Monthly," send the pertinent information and illustrations (if available) to the attention of the Editor, "Ceramics Monthly," 3494 N. High St., Columbus 14.

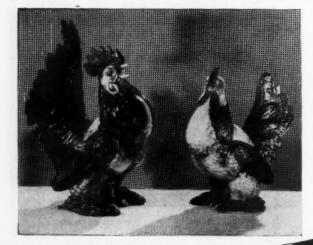
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WHERE TO SHOW

CONNECTICUT, Norwalk

June 6-July 4

Fifth Annual New England Show at Silvermine Guild of Artists. Open to artists born, or resident two months, in New England. Mediums include ceramic sculpture. Prizes: more than \$2000. Jury; fee: \$3; entry cards, work due May 15, 16, 17 (sculpture photos due May 3). Write Revington Arthur, exhibition chairman, at the Guild, Silvermine Rd., Norwalk, Conn.

FLORIDA, Miami June 6-27

Second Annual Ceramic Exhibition at Lowe Gallery, University of Miami. Open competition sponsored by Ceramic League of Miami. Jury; cash and purchase awards in ceramic sculpture, pottery and enamels. Entry fee: \$3. For applications, write Juanita May, 1953 Tiger Tail Ave., Coconut Grove,

New York, Flushing April 25-May 1

Art League of Long Island exhibit for all Greater New York and Long Island artists. Mediums include ceramics. Fee: \$3. Jury; cash awards and medals. Entries due April 11. For information, write Esther Zweibach, exhibition chairman, 149-16 41st Ave., Flushing 55.

New York, Rochester

May 7-June 6

1954 Rochester Finger Lakes Exhibit at the Memorial Art Gallery. For artists and craftsmen of West-central New York. Ceramics included. Fee: \$1. Jury, prizes. Entry cards due April 16; work, April 23. Write Isabel C. Herdle at the Gallery.

Оню, Cleveland

May 5-June 13

Thirty-sixth May Show at the Cleveland Museum of Art. For artists now residing, or born, in Greater Cleveland (Cuyahoga County). Mediums include ceramic sculpture, pottery, enameling on metal. Work shall have been finished since April 1, 1953. Jury; awards. Fee: \$2. Entry blanks due April 6; work, April 10-17. Blanks available at Museum, other galleries.

OREGON, Portland

May 13-June 12

Northwest Ceramics Fifth Annual Exhibition of pottery, sculpture and enamels at Oregon Ceramic Studio. Work produced during twelve months preceding date of entry; open to residents of British Columbia, Idaho, Montana, Oregon and Washington. Cash awards. Jury; entry dates, April 12-26. Write studio at 3934 S. W. Corbett Ave., for information and blanks.

PENNSYLVANIA, Pittsburgh

May 16-June 6

Western Pennsylvania Sculpture Exhibition. Mediums: all permanent sculpture materials. Open to sculptors of the Pgh. Tri-state area (W. Pa., Ohio, W. Va.). Fee: \$2 per entry (limit 2) or \$5 membership in Society of Sculptors. Jury: prizes. Entries due May 6; work, May 9-11. Write Henry Bursztinowicz, Arts & Crafts Center, 5th & Shady Aves., Pittsburgh 32.

WHERE TO GO

CALIFORNIA, Claremont

through April 15

Eighty west coast ceramists represented in Eleventh Annual Scripps Invitational Spring Ceramic Show. At Florence Rand Lang Art Bldg., Scripps College.

ILLINOIS, Chicago

through April 26

Mid West showing of Designer-Craftsmen U.S.A., at Art Institute. More than two hundred handcrafted objects by Americans includes ceramics. The exhibition was drawn from nine juried regional shows and first displayed at the Brooklyn Museum last fall.

ILLINOIS, Chicago

through April 26

An exhibition of the work of Designer-Craftsmen of Illinois, Indiana, Michigan and Wisconsin shown along-side the national Designer-Craftsmen, U.S.A., exhibit at the Art Institute.

ILLINOIS, Chicago

April 7-30

Display of the 17th Ceramic National traveling exhibition at Marshall Field's.

ILLINOIS, Chicago

April 19-23

Fifty-sixth Annual Meeting of the American Ceramic Society includes program sponsored by Design Division. Formal papers, discussions, at the Palmer House.

KANSAS, Wichita

April 11-May 11

Ninth Annual National Decorative Arts-Ceramic Exhibition at Wichita Art Association, 401 N. Belmont Ave.

KENTUCKY, Louisville

April 3-May 9

Louisville Art Center Association 27th Annual Exhibition includes ceramics. Artists and craftsmen of Kentucky and southern Indiana represented. At J. B. Speed Art Museum.

LOUISIANA, New Orleans

through April 11

Crafts are included in the Art Association of New Orleans 53rd Spring Annual at Isaac Delgado Museum.

Massachusetts, Cambridge

April 4-25

Textiles and Ceramics exhibition at Hayden Memorial Library, Massachu-(Please turn to Page 35)

a letter from the editor

Dear Reader

With this issue we are pleased to introduce two series of articles on decorating which will, henceforth, be monthly items.

On page 25 is the first of a series on overglaze decorating which will cover the principles and techniques for using mineral pigments (china paints), gold and other metals, lusters, enamels and raised pastes. The author, Zena Holst, is dedicated to this art. She has lived with it, nourished it and taught it for nearly half a century. She has seen it decline during the depression after enormous popularity in the early 1900's; and now she sees its revival in the current enthusiasm for ceramics. "Unfortunately," declares Mrs. Holst, "there is still little regard for good design, and much of the technique has been lost. I would like to bring it to light again and aid in adapting these mediums to contemporary needs."

And she is well qualified to do so. She has been a serious student of the art from the age of eleven when she began the first of many formal lessons. In addition, she maintained close contact for years with distinguished ceramic decorators including Campana, O'Hara, Robineau, Heckman, Cherry, Aulich and Paist. At the age of eighteen she began to teach others, and she has been teaching, off and on, ever since.

The companion series, lessons on basic decoration (page 22), is prepared by the CM staff and advisors. It is based on the principles of sound design, and presented in a general manner so that each ceramist may proceed according to his own imagination and ingenuity, using whatever medium or technique he prefers.

The ceramist whose primary interest is in decorating will, we are sure, find both these monthly features stimulating and inspiring for the production of even better decoration. The series should also be a stimulus for the potters—the beginners and the advanced alike—who feel the need for practical help on decorating. We hope the articles will give our readers greater confidence in working with color, and greater freedom in the use of decoration on pottery.

Today's ceramists can use both!

Yours sincerely,

Jour g. tarber

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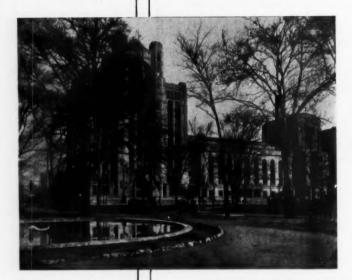
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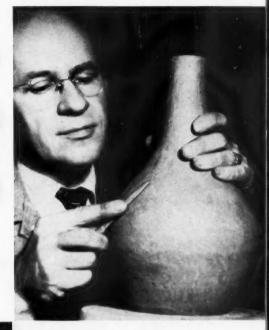
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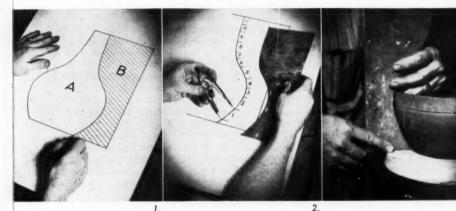
Arthur E. Higgs, Managing Director Masonic Temple Detroit, Michigan

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hand building by the STRIP METHOD

by ALLAN A. EASTMAN





FINISHING touch by author, above. Using rounded tool, he polishes leather-hard pot. Clay will retain the finish after firing. The piece was made with strips, instead of coils, of clay; a template (see left) was used to check the shape of the pot as it was built up. Eastman is a member of the faculty at Richmond Professional Institute, College of William and Mary, at Richmond, Virginia, During a teaching career of twenty-five years, he has worked with children as well as with adults. (Photos by Pat Osso.)

N EARLY everyone who builds pots from coils of clay becomes discouraged at one time or another with the slowness of the process. Why not try an excellent substitute—the strip method of hand building?

Little has been written about the strip method. Yet this offshoot of the coil technique is an effective way to make a well-shaped pot in far less time than it takes with coils. You work with wide strips of clay and control the shape of the pot, as it is built up, by using a template or pattern as a guide. By this process, you can hand build pots that have the smoothness and accuracy characteristic of wheel-thrown pieces. Let's go to work and see how it is done.

These are the tools needed for building by the strip method:

2 guide sticks (approx. 3/8-inch thick and 2 feet long)

Rolling pin Thin-bladed knife 1/2-yard oil cloth Small jar with cover #8 brush Modeling tool with round end Elephant ear sponge Pointed stick or tool Plaster bat

Banding wheel if available.

The form to be made must first of all be conceived in the potter's mind; then drawn on paper in slightly larger dimensions to allow for clay shrinkage (Figure 1-A). The next step is to make the template, or pattern. It may be made of stiff paper, cardboard or any thin scrap metal (a flattened out tin can will do). Metal will prove the most satisfactory because moisture in the clay may soften and distort the edge of paper or cardboard. Lay or paste the original drawing (full size) on the material to be used (let us say metal). Since the original drawing represents the positive form, we must cut out the negative shape (Figure 1-B).

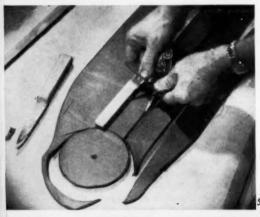
Be sure to smooth off any rough edges on the template with a file and steel wool or emery. If this is not done, the imperfections will show on the clay (which could prove desirable for certain textured effects).

Study the template at this point and decide how wide the strips will have to be cut. Keep in mind that the greater the curve, the narrower the strips should be. For convenience in locating later, let us number them as we mark them out (Figure 2).

NOW we are ready to prepare the clay. Thoroughly wedge (beware of air bubbles) a good-sized ball of clay, set it on the cloth side of the oil cloth, place the guide sticks in position (Figure 3), and flatten the clay with the rolling pin until the pin rests on the sticks. This will give you a uniform thickness of clay. If a rolling pin and guide sticks are not available, wooden rulers may be used—two as guide sticks









if thick enough, and one as a spreader (Figure 4); or you may spread the clay on the oil cloth with a large spatula until even, checking the clay for thickness by inserting a needle or pin at various points.

At one end of the clay slab mark a circle (the base of your pot) with a compass and cut it out with a thin-bladed knife (Figure 5). When the pot to be made is a large one, the base should be thicker than the side walls. In fact, it is good practice in all cases to make the base thicker for better support of the walls—never less than \(\frac{1}{2} \) inch and preferably \(\frac{1}{2} \) inch or more, depending on the size of the piece.

Set the base on a plaster bat or slab and fix it in place with slip. The bat should be slightly damp so the clay will stick, but be sure the bat is not saturated for then the clay will not stick. If this is done correctly, the piece will adhere to the bat until

With the help of a straight-edged guide, we can now lay out the strips (Figure 5) according to the figuring on the template (Figure 2). A ruler or pair of dividers should be used to mark the widths. Be sure the slab of clay is big enough to allow for cutting strips long enough to go all the way around the pot without piecing. Cut the strips with your thin-bladed knife, lift them carefully and put them aside, covered with a damp cloth, until you are ready to use them.

(You may prefer to cut only one strip at a time. In that case, fasten it to the base and let it dry slightly while the next strip is being cut. Such a procedure would actually be advisable if your clay is too soft.)

THE template, base, and strips are ready so we can prepare to build the walls. A banding wheel (whirler) will come in handy here because it enables you to turn the piece easily as

you work. With a pointed tool, roughen or crosshatch the area on the base where the first strip is to be placed; and do the same to one edge of the first strip. Then coat these roughened areas with a slip solution (Figure 6). (Make the slip of the same kind of clay as the pot, combine with water, and add a few drops of vinegar to keep the clay in suspension. It should have the consistency of heavy cream.) Slip makes the clay tacky; it insures a good joint because it acts as an adhesive. Be sure to work it into any marks that may go deep in the clay. This will eliminate air pockets.

Place one end of the first strip on the base and check the angle with your template as the strip is forced down and welded to the base (Figure 7). What you do next depends on the type of joint you prefer. You may use either the butt joint or the lap (bevel) joint, the latter having greater surface area for adhesion (Figure 8). In either case, cut the ends of the strip to fit (checking with the template), crosshatch, and stick together with slip. Then with your fingers weld, or smooth, all the seams, working back and forth, remembering to support the opposite side with your hand.

Then, using slip again, paint the inside edge where the bottom strip joins the base. Make a small coil or worm of clay and work it into the edge for added strength (Figure 9—the strip is broken to show operation). Be sure to start at one end of the coil and work it in a little at a time so that air pockets will be forced out. Such reinforcement is necessary only when placing the first strip on the base.

Again, check the form with the template for accuracy. Then add strip #2 and so on, using the same welding and joining process, and checking constantly with the template. Never allow the ends of strips to start in the same spot because it will weaken your piece.





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CERAMICS MONTHLY



STUDENTS of the author hand build by the strip method. Examples of their work, shown here, include (left to right) two vases by G. Hopkins, lamp base by Laura Dunlap, and vase by Y. Wentz. The method offers a faster way to build a well-shaped piece of pottery, Mr. Eastman finds.

When using the template make certain the bottom edge rests squarely on the surface of the bat (Figure 10). A common tendency among beginners is to tilt the template slightly when checking the piece and this, of course, throws the whole pot out of shape.

After the first three or four strips have been placed, allow the piece to dry or harden for a while. The clay will then have the strength to support additional strips without distortion or collapse of the piece.

As the piece progresses, rubbing or working at the seams should be repeated several times; if not properly welded the seams will continue to show as the piece dries. One of the pitfalls for the beginner, however, is stretching a piece out of shape. It is caused by

too much pressure during welding or by fitting the strips incorrectly. If such distortion occurs, it can be corrected by shrinking the clay; that is, by working the hands toward each other in a horizontal movement, pressing from the outside only, the thumbs on the inside acting as guides (Figure 11).

You will observe that I advocate cross hatching and the use of slip wherever two pieces of clay are to be joined. There are other schools of thought but I have found, through years of teaching children and adults, that slip assures a good joint. What, after all, is more heartbreaking to the beginner than to labor diligently only to find his piece has cracked in the firing because of faulty seams?

One of the advantages of the strip method is that little scraping or trimming is needed when the assembling is over. After the piece has been allowed to sit on the bat until leather hard, minor humps and irregularities can be removed by rubbing with the fingers or with a wooden tool (see photo at top of page 11), or by using a damp elephant ear sponge (a foam rubber makeup sponge is a good substitute). Allow the piece to dry thoroughly before firing. After firing, finish with a glaze as you would if you had made the piece by another method.

I feel sure you will enjoy building a piece by the strip method because the process gives you speed of assembly, uniformity of wall thickness and accuracy of shape—all this, and your piece still retains that handmade look.







APRIL 1954



PORCELAIN chessmen, by the author, were made by drain casting. Porcelain bodies are versatile. They may also be used for throwing, hand building, and for solid casting.

porcelain for studio potters

Part 2

Bodies & Glazes

by DOROTHY W. PERKINS

In her first article about porcelain (March issue), Dorothy Perkins discussed the subject in general terms. The following and concluding article gives more complete information about the preparation of bodies and glazes, and about firing. The author hopes the information will encourage amateurs to try translucent bodies in their high-fire electric kilns, in ordinary oxidizing atmospheres.

THE BODY of early Chinese porcelains was composed of kaolin and feldspar only, but present-day porcelain contains flint and, sometimes, ball clay and auxiliary fluxes. Each material fills a need; and how they are proportioned depends on what you desire in the way of whiteness, maturity, translucency and plasticity.

translucency and plasticity.

Whiteness. Kaolin provides the white base and some kaolins fire whiter than others. Georgia kaolin, such as Pioneer Clay from the Georgia Kaolin Company, fires very light. A good, light-firing, plastic kaolin from Florida is produced by the Edgar Plastic Kaolin Company.

Whiteness is affected by other ma-

terials, too. Some ball clays fire lighter than others. Victoria Clay from United Clay Mines is light-firing, as is Tennessee Ball Clay #5.

Certain feldspars fire to a grayish color. Nepheline syenite, however, fires almost white and, being a "soft" spar, is very helpful in producing porcelain bodies at studio temperatures. Potter's flint does not affect the body color.

Porcelain bodies are sometimes made to appear whiter by the addition of minute amounts of cobalt. A soluble salt form of the colorant, such as cobalt sulphate, disperses more evenly than an oxide form. The use of cobalt has the same effect on a white body as bluing has on a white wash: it makes the white appear whiter.

Maturing Temperature. The degree of vitrification in a porcelain body is determined chiefly by feldspar. Some feldspars fuse at lower temperatures than others. Those high in calcium are the most refractory, those high in pot-

ash are second, and those high in soda are third. Nepheline syenite is one of the easily fused spars. Auxiliary fluxes such as whiting, dolomite, talc or commercial body frits may also be used.

Translucency. The more glasslike the structure of the fired body, the greater the translucency will be. Ball clay has an adverse effect on translucency so if it is used, the percentage should be kept low—use just enough to make the body workable. Translucency should not be expected in pieces that have thick walls; and it is difficult to throw porcelain thin enough to take advantage of whatever translucency the body may have. Turning in the leatherhard stage is ordinarily required. Jiggered and cast ware can be made thin enough to be translucent; lathing is sometimes needed.

Plasticity. In throwing or jiggering bodies, plasticity is essential; and it is also an important factor in casting bodies if they are to be trimmed without tearing. Kaolin, feldspar and flint are all non-plastics, (although some kaolins may have a degree of plasticity). Plasticity may be induced through one or more of the following mediums:

(Please turn to Page 26)

Dorothy Perkins is a member of the ceramics teaching staff at the Rhode Island School of Design at Providence.

SHOW TIME



BAUD: Brown platter and vase

Potters of Vallauris

LARGEST CENTER of ceramic craftsmanship in the western world today is the little town of Vallauris on the Mediterranean coast of France. No less than one hundred potters (professionals and artists-turned-potter) are at work in the town. Their production is remarkably diversified, ranging from decorative objects of art to the simplest cooking vessels such as the earthenware casseroles now found in our department stores (stamped with the name of the town).

Although pottery is an ancient craft at Vallauris, it has only in recent years

become the center of the French ceramic industry. Picasso provided a powerful stimulus when he moved there in 1948 and began to produce pottery in one of the old workshops. Other French painters—Arp, Chagall, Leger, Matisse, Miro and Prinner among them—followed. The artists have worked side by side with the professional potters, and their influence on the work produced is apparent. The town now attracts not only ceramists but thousands of tourists who come to see displays in the new small Museum of Vallauris.

The Artists and Potters of Vallauris Exhibition which toured twelve museums in the United States in recent months was the first comprehensive exhibit of contemporary French ceramics to visit our country. Assembled by Rene Bastigne, founder and director of the town's Museum, the show was circulated by the Smithsonian Institution. Nearly one hundred examples of the work of both artists and professional potters were in the display, a small selection of which is shown in the photos here.

(Please turn to Page 37)



GRAND-CHENE: Black Madonna

BURTAIN: Rooster vase



PICASSO: Goose jug

VALENTIN: Pitcher, beakers and mugs

PICASSO: Goat vase



APRIL 1954



ORNAMENTATION

by CARLTON ATHERTON

Although the terms decoration and ornament have become synonymous to many of us, including the lexicographers there is a distinction between them which should be clarified. Decoration, in its broad meaning, is a comprehensive term which embraces all the various types of adornment or embellishment of an object. It is that element in decorative art which supplies added interest by means of detail; and it includes ornament as a particular type of decoration.

Ornament is decoration reduced to a system and is, by its very nature, formal. Decoration, in its narrower sense, is informal. Ornament is confined by symmetry while decoration has the ostensible freedom of asymmetry. Freedom, however, can be a dangerous thing because use can be turned to abuse in license and indulgence. Perhaps through instinctive awareness of this, primitive peoples have almost invariably utilized ornament as a means of decorative treatment, but more probably its use was the result of their highly ritualistic pattern of living.

Historically, occidentals also have been more at home with ornament and have rarely strayed from its formality

except in periods of artistic decadence. Orientals, however, notably the Japanese, have used irregular balance to a great degree. With sure insight, they have created harmony through the kind of order which sets up stimulating opposition between the decorative devices and the organization of the pot, the asymmetric counterplay of embellishment with the shape on which it is used.

AN has two important kinds of need—the practical, and for want of a better word, the spiritual. It is necessary for us to have those things which fulfill our physical requirements but without those which arouse emotional response life would be intolerable. Since he first fashioned fetishes and tools, man has demonstrated his profound emotional need for ornamentation. In primitive cultures it amounts to a positive craving. It is relatively unimportant whether the desire sprang from a psychological aversion to blank spaces or was prompted by magico-religious motives. The cause may have been multi-rooted but the need is still common to all of us.

The philosophy and the pattern of living of any given time or culture affect ornament to a very great degree. Primitive art clearly shows a desire to express a complete sense of fulfillment. Ordinarily, each motif or repeat is obviously complete in itself. Its relation to the whole is established by the simple expedient of repetition, the seem-

The author teaches at the Ohio State University, Columbus, Ohio, where he is a Professor of Ceramic Art.

ing intricacy due more to multiplicity than to complexity. Elaborate effects which satisfy the desire for richness are easily obtained in this manner. But as culture progresses, a more involved ornamental idea—an extension which requires time to be perceived—is developed. Space elements which lead the eye from one detail to another are established to encourage prolonged consideration and appreciation of the piece. By this means the unity of the figures becomes less immediately obvious. If the intricate but logical tracery on a Persian bowl is contrasted with the pattern on a primitive pot, the differing ornamental idea is apparent.

Intricate ornament is not intended to be seen at a glance but must bear repeated scrutiny. That is the essence of it. The longer it takes to perceive the idea, the longer interest and delight can be sustained. But herein lies a danger; if ornament is overextended or becomes too involved, it may tire the observer or be incomprehensible to him. It then defeats its purpose of prolonging consideration. Ornament, even though elaborate, should never bear signs of struggle or proclaim technical triumphs. It should be revealed with apparent ease, giving the appearance of simple logic and the impression of having grown from within, easily and with little effort.

ORNAMENT can be divided into two great classes: structural and applied.

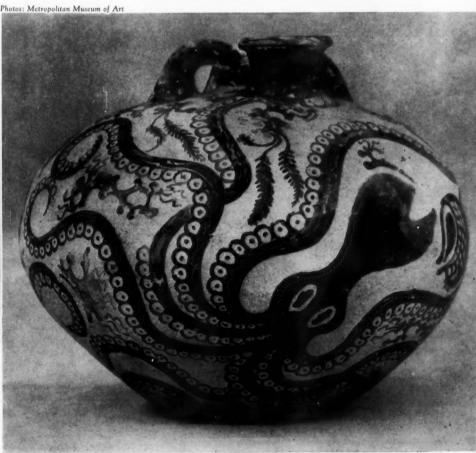
Structural ornament can further be divided (as set forth by Herbert Read in Art and Industry) as fortuitous and factitious. It is fortuitous when some inherent property of the material produces a decorative effect such as irregular coloring in some clays, or mottling and streaking of certain glazes. It is factitious when it develops from the manner

of working the material, such as the marks left by the potter's fingers in the throwing process. Primitive potters were quick to realize the decorative possibilities arising naturally in hand-coiling and often left the coils on the outer surfaces untouched. At other times the coils were impressed at regular intervals with finger or tool as building progressed, possibly in imitation of basketry. When ornamental, the secondary utilitarian features—handles, spouts, lids and knobs—can also be classed as factitious. Under a skilled hand, structural ornament has a live quality, developing as the pot develops and remaining as an integral part of it. Because it is controlled by the generating lines of the piece, this type of ornament has unity, coherence, and a sense of unerring logic.

Applied ornament is that which is not necessarily functional, is not manufactured with the pot, but is an embellishment of the material or its surface. This type of treatment can be used in as many ways as there are decorative techniques, and in various stages as the work progresses. Unfired wares can be modeled, combed, stamped, sprigged, carved, slip-trailed, stenciled or painted. After the biscuit firing, the ware can be painted with underglaze colors or soluble salts; or drawn upon with underglaze crayon. Printed or transfer-patterns can be applied. After glazing but before the glost firing, glazes can be inlaid or prepared stains can be painted upon the raw glaze. After the glost firing, the ware can be painted, stenciled, printed, or sprayed with overglaze colors, metallic lusters, metals and enamel. The techniques and their combinations are limitless. The type of application is relatively unimportant. It is the concept and the relationship of the ornament to the form which should be of primary concern, for the form can be



CHARACTERISTIC differences between ornament and decoration can be seen by comparing these pots, made in Crete during the second millenium B.C. Ornament, above, is a formal, repeat motif. Decoration (right) is informal, allowing greater freedom—and requiring greater design ability.











THE OBLITERATION of form by the misuse of painting is exemplified in the bowl with a deep well, above. The form has been sacrificed to representational art. Painted by the renowned maiolist, Andreoli, 16th Century, Italian.





TIME-APPRECIATION can be compared in fine pieces of pottery above. The South American jar is ornamented by vertical panels containing repeated simple units. The arrangement on the Persian bowl to the left is far more complex, and while there is a repetition of identical segments, no two of these segments carry the same pattern.

given a longer time-interest or be destroyed according to the perception and skill of the potter.

Skill should not be neglected. It is true that no amount of dexterity in manipulation can improve a poorly conceived pattern, but many a pattern has lost its meaning because of faulty technique. Ornament will surely lose vigor unless there is coordination between the mind of the decorator and the instrument used. The tool should simply be an extension of the mind and not a barrier between it and its expression. The pattern will surely be marred to the degree that the instrument is an interference.

The finest results in decorating come from working directly on pottery, using the same tools and materials for experiment as will be employed for the finished ware. Since the nature of each instrument will determine to a large extent the character of the finished work, complete familiarity with it is essential. Here is an area where many ceramists, for fear of spoiling their effect, are short sighted and inhibited by restraint. To overcome the handicap, it would be wise for them to make some pieces for the express purpose of experimentation. Release from tension comes almost at once with the realization that the decorating is simply an exercise. Some surprisingly good results may be obtained, for born of this freedom are a spontaneity and directness which are extremely hard to recapture—the same freshness and expressiveness often seen in the painter's sketchbook. For treatment with brush or slip trailer some pieces could be bisque-fired and used over and over again, the underglaze color or slip being washed off with water. For experimentation with oil media, such as overglaze colors, glazed ware should be used. The color can be removed with turpentine. Working in this manner

← CONTEMPORARY cookie jar by Arthur Baggs is an excellent example of structural, factitious ornamentation. The plastic, yet fragile, nature of clay has been understood, respected, emphasized.







ORNAMENT which wraps itself snugly around the form, arousing curiosity and further investigation, is shown in the Chinese Tz'u chou vase (Sung) at left. Such fine relationship with form must have been created directly on the piece, not on a drawing board. The Danish contemporary vase by Thirslund (center) shows an easy use of representational decoration, complementary to the form.

TECHNICAL SKILL featuring the dexterity of the maker, rather than the nature of the material, is displayed above, right. A Sicilian funerary vase, third century B. C., it is of terra cotta with polychrome decoration. The piece might be compared with the cookie jar on the opposite page, although each was motivated by a completely different purpose, diverse in character.

a real knowledge and understanding of tools and materials will be gained, fear will be dissipated, and a kind of vitality will result to more than compensate for the effort. At the same time, a decorative vocabulary will develop, for each pattern made will suggest new ones, each motif devised will bring new ideas.

EACH shape should have special consideration; each calls for a treatment in keeping with its individuality. It would be well to avoid drawing board decoration. The flatness of the paper in no way resembles a curving plane which has a specific character of its own.

Ornament should accentuate the form, or play over it, in such a way as to prolong interest in the pot rather than in itself. The result should make us conscious not of ornament on a pot but of an ornamented pot. It is the form, the piece of pottery, which is important, not the ornament applied to it. The treatment should emphasize the form, become a part of it, persuade further investigation; incite curiosity to explore, to move around it or to pick it up for further examination. Ornament is fulfilling part of its purpose when it arouses increased interest in the pot on which it is applied, when it invites handling and use. But it must be content, no matter how beautiful in itself, to be only a part of a larger whole; it cannot exist independent of the mother form. Occasionally, when done with complete and sympathetic understanding by a sensitive potter, ornament can sing out, but even then it must be incorporated as part of a larger harmony.

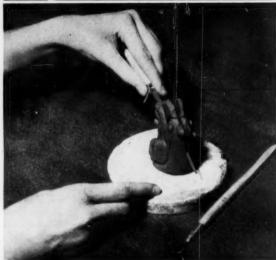
Whether or not a potter becomes a fine decorator depends on his discernment, perception, imagination and other capabilities. Some individuals and peoples seem to be endowed with natural aptitude for producing good ornament, others apparently lack the capability. The Persians, with their versatile and extremely logical minds, seem to have been equipped with a special sense of decorative imagery. They, perhaps more than any people, have delved

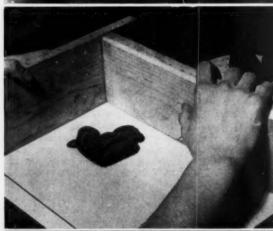
into the exuberance of patterned surfaces. Their fertile minds, and an almost unerring color sense, produced some of the finest examples of decorated ware in the history of pottery. The Persians were content to employ ornament and color as a splendid accompaniment, full of felicity and graciousness. Although often elaborate, the ornament is subservient to the form, and fits like an elegant raiment.

The fate of this tradition when transplanted in Italy should point a warning finger. Due to the influence of Renaissance painters, the decorator slowly took precedence over the potter. Ornament imitated the work of the great contemporary masters, losing its value as ornament without gaining the distinction of painting. By the middle of the sixteenth century, ware was often made expressly as a vehicle for painted pictures which on the changing surfaces of pottery became meaningless both as pictures and as ornament. Italy, which earlier had led all of Europe in the production of fine earthenware, consequently sank into comparative ceramic oblivion. (The impressive art of medieval stained glass was earlier meted the same fate and was utterly destroyed in the attempt to imitate painting.)

Good ornament is an achievement which cannot be reduced to a formula but there are certain principles which govern it. Some of them, gathered from many sources, are given in conclusion. Ornament should be appropriate to the form on which it is used. It should never deny the nature of the material but rather call attention to those qualities which are peculiar to it. It should be scaled definitely in relation to the size and shape of the pot; and it should vitalize the surface. The form should not be consumed and absorbed to the advantage of ornament. Structural lines of the pot and ornament should be organically related. Ornament should accentuate the form by focussing attention on the generating lines which regulate the mass. It should do little more than continue the thought set forth in the construction of the pot.









Two-Piece Press Molds

by JOHN KENNY

SCULPTURE forms can be duplicated easily in press molds when the shapes are not too complicated. Plastic clay pressed into a plaster mold makes a faithful reproduction of the original model. Flat-backed sculpture, such as bas reliefs or tiles, can be made in one-piece press molds. This type of mold, the simplest of all the sculptor uses, was described in the March issue. Sculpture in the round, however, requires molds of two or more pieces.

To illustrate—suppose we want to reproduce the shape of a whole orange. We could make a one-piece mold of the orange but we would not be able to get the model out of the plaster. The shape of the orange would form an undercut because the portion beyond the center diminishes in size. If plaster was poured over the orange, the model would be locked firmly in the mold. A mold of spherical shape, therefore, must be made in two parts which are separated at the widest portion of the model.

The way to make a two-piece press mold of the orange would be to cut the model in half and cast each part separately. The same procedure can be followed with ceramic sculpture that is fairly simple in design. We can see how it is done if we go through the steps with the small bird shown in the photos.

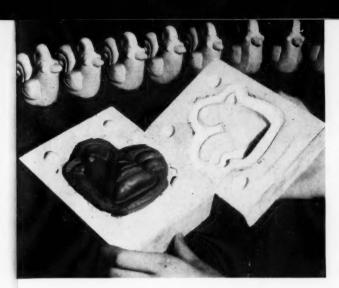
The bird is modeled in clay and then cut in half along its center line. Plaster is poured over one half of the bird to form the first half of the mold. This section of the model is left imbedded in the plaster.

Notches must be cut in this first half of the mold so that the two portions, when completed, will fit together properly. A good tool for the purpose is a potter's knife with the end bent into a hook shape, or a notch-cutting knife sold by ceramic dealers. An ordinary table knife with a round-ended blade may be used. The knife is rotated against the surface of the plaster until it cuts a circular depression about an inch in diameter and half an inch deep.

When you cut the notches, space them irregularly. It is a good idea to have two notches fairly close together at one end and one notch at the opposite end, so that when you put the two halves of the mold together, you can see at a glance how they fit.

After the notches are cut, you must size the portion of the mold which will come in touch when the second half

SEVENTH in a series, this article is drawn from the author's latest book, "Ceramic Sculpture," published by Greenberg: Publisher of New York.



is poured. Be sure to size the inside of the notches and yet not allow any free size to remain in them.

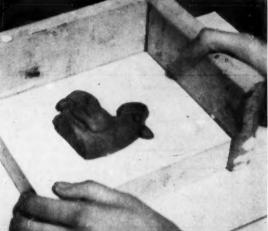
Now the other half of the bird model is placed on top of the portion still remaining in the plaster. The edges must match perfectly. The second half of the mold is poured and after the plaster has set, the mold can be separated and the model removed.

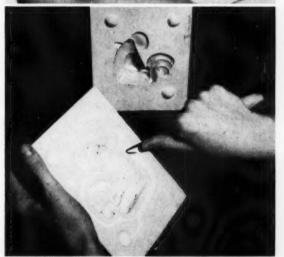
When a two-piece press mold of this type is used, clay will be placed in the opening of one half of the mold and then the two halves will be pressed together. This will force the clay into all parts of the mold but there must be space where excess clay can go when the two halves come together. To provide the space, a groove is cut completely around the figure in each half of the mold. A hooked knife is used to cut these grooves. When the finished bird is removed from the mold, the ridge left on it by excess clay can be trimmed off with a knife.

MANY of the forms from which a sculptor makes molds are more complicated than those we have studied so far, and the molds often require more than two pieces. The problem of deciding how many pieces a mold should have, and where the division between the pieces should be, is an intricate one. To solve it, we must consider the problem of draft, and decide the direction in which each section of the mold is to move as it comes away from the model. Each piece of the mold should cover as large a portion of the model as possible without reaching around any projecting portion which would hold it fast. You should be able to remove all pieces of the mold from the model without marring it in any way (note-this does not apply to waste molds; they are a special case). Molds of complicated shapes must often have many parts, with special pieces cast to fill undercut portions. Sometimes, too, the sculptor finds it easier to remove some projecting portions, like hands, and make molds of them separately.

Even though he does not plan to make duplicates of his work, press molds have advantages for the ceramic sculptor. The clay that is to be pressed into a mold can have a courser texture and contain more grog than the clay used for the original model; the piece, therefore, will fire better. If the work is large, it is possible to make a wall of more uniform thickness by pressing a layer of clay into a mold than can be obtained by hollowing out the original model—again making for better results in the kiln. And, finally, the use of a press mold forces the sculptor to simplify the form and in so doing, nine times out of ten, he strengthens the design.

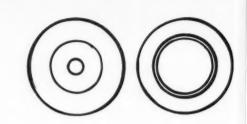




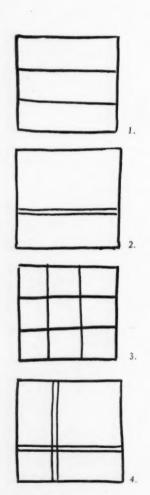




BASIC DECORATION



LESSON NO. 1: LINES



VARIETY is not only the spice of life but also of design. Exact uniformity should be avoided; variety quickens interest and provides the enjoyment of comparison. Note the more active quality of tile 2 over tile 1. Evenly spaced vertical and horizontal lines (tile 3) produces nine identical squares — and monotony. In the arrangement on tile 4 we can find three squares (large, medium, and small), and three pairs of rectangles, identical in size and shape; but one of each pair is horizontal, the other is vertical.

LINES offer the ceramist one of the simplest methods for embellishing his work. Whether he is decorating a flat tile, round bowl or plate, a symmetric or asymmetric pot of any size or shape, he can achieve an interesting decoration by using only lines. And, whether he chooses to use overglaze or underglaze colors, slip paints, sgraffito, or any decorating medium or technique, simple lines can serve him well.

We won't go along with the people who cry that they "can't even draw a straight line." Anyone can decorate ceramics with lines. To aid the untrained or unsteady hand, various supports or guides can be employed; and for decorating round objects, the banding wheel solves the problem. If people cried that they didn't know where to place the lines for interesting decoration, we would be far more inclined to agree. Lines can produce a monotonous, or an imaginative and exciting, decoration. The ability of the decorator is the controlling factor.

Too often a decorator sees only the line he has made, and is oblivious to the fact that he has divided space and created areas. Lines are the means by which spacing is achieved, and good decoration depends on good spacing. It must be kept in mind, too, that the areas must relate not only to each other but to the piece as well. The choice of space division, therefore, is of prime importance and the first step in planning a decoration.

The sketches and captions presented here will help illustrate these points. Note the difference, for example, between tiles 3 and 4. Each is inscribed with four lines, creating nine spaces. The similarity, however, ends there. Tile 3 is monotonous; each space or area is identical with its neighbor. You see one space and, for all practical purpose, you have seen all nine. On tile 4, the nine spaces invite a second look.

On pottery, lines can be used to echo the form of the pot, or to emphasize some of its parts. A simple method is to parallel the mouth of a vase, the lip of a bowl or the rim of a plate. For variety and contrast, these horizontal lines can be cut by vertical lines. These can extend from the lip to the foot, or divide one or more of the horizontal spaces. The effectiveness of the resulting decoration will, of

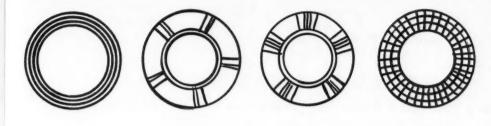


HORIZONTAL lines can be used to punctuate a natural division such as a shoulder, as at left. If there are no such divisions, a long unbroken area can be cut at the discretion of the decorator. Take care to make divisions as interesting as possible. The same space divisions can be further strengthened (below) by one or more horizontal









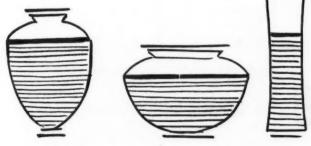
ON PLATES and other flat ware, lines which parallel the rim assume the same character as the straight horizontal lines on the tiles. Avoid the even spacing shown on the first plate; strive for greater interest through variety. Groups of "vertical" lines can create added action. It is advisable to treat the flange and the well of a plate as separate areas, in order to emphasize, not destroy, the form.

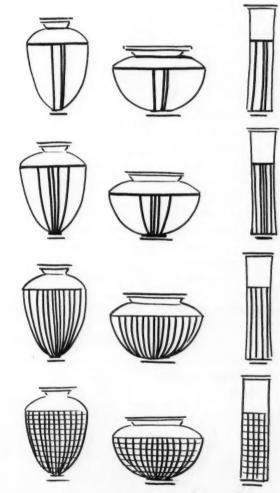
course, depend on the discrimination of the decorator. Whether an active or a passive decoration evolves is determined by his use of horizontal or vertical lines.

Whether we are aware of it or not, lines produce sensations within us, probably due to our unconscious awareness of gravity. A very tall vase set close to the edge of a table creates a sensation of activity; a large platter, even if protruding beyond the edge of the table, produces more passive feelings in us. The vase is vertical; the platter, horizontal. Similar feelings can be evoked through the use of lines. Horizontal lines on a pot give the feeling of repose-no strain against gravity. Vertical lines are lines of vigora potential battle with gravity. (Diagonal lines are lines of activity or movement, a subject which will be treated in a subsequent lesson.)

Innumerable variations and combinations of lines are available to you. You are not restricted to any specific medium. Pick up your brush, pen, ceramic crayon, or scratching tool, and try decorating with lines. If you follow the few basic rules, surprisingly good and rewarding results can be yours.

lines. Try three at one or more of these points; or a different number at each point of division. One of the zones could be banded at regular intervals to give a textural feeling. Below, the largest area was selected for "texturing." Try banding, or texturing, the neck or the shoulder; that is, the intermediate or the smallest zone.





VERTICAL lines added to the original horizontals, increases tremendously the opportunity for invigorating and stabilizing the pattern of space divisions. Try various groupings of verticals, and experiment with the placement of these groups. They can run from mouth to foot; be widely or compactly spaced. As with the plates, it is generally advisable to restrict vertical reenforcement to one area. Try striping one of the zones with regular spaced lines; or, use banding and striping both, for a compact "texture."

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OVERGLAZE DECORATION

by ZENA S. HOLST

first of a series: FIRING

ACK OF information about proper firing temperatures seems to be the biggest problem that overglaze decorators have today. The trouble comes mostly from not realizing that overglaze colors can be fired over a wide range of temperatures; that the proper annealment of the decoration depends entirely on the glaze and ceramic body to which it is applied.

Annealment—fixing of the color during the firing—is of primary importance. The overglaze decoration must become vitrified by correct temperature, melt and adhere perfectly to the surface to which it is applied, expand and contract with that surface, and remain unaltered by atmospheric conditions. After firing, the color should be, as nearly as possible, the same as it was before going into the kiln. (Pure metals, lusters and enamels are, of course, exceptions for their appearance does change.)

The vitrifiable mineral colors used in overglaze decoration must be well combined with the glaze for satisfactory results. With few exceptions, however, the skill of the color manufacturers has fulfilled all the conditions necessary for proper vitrification in firing. We can

count on the colors having been properly fluxed in a standard degree.

Recognition of the type of ware you are using decides the exact temperature at which it must be finished in the decoration firing. A wide selection—from hard, medium and soft porcelains to art bodies and pottery—are now being decorated with an assortment of overglaze materials. The final results will always be uncertain unless the firing is properly controlled following certain precautions.

The temperature chart rule, set forth at the end of this article, applies to all overglaze decoration. Mineral colors which are properly fluxed will sink into and combine with the glaze. Enamel colors, which do not contain much flux, will remain in flat adherance to the glaze. The pure metals and lusters also will anneal properly if fired according to the temperature chart.

Various ceramic bodies are not too difficult to recognize, and the manufacturer or dealer usually will give information as to his specific type of ware. A range of temperature for china painting, from 1157° F., to 1517° F., does not seem wide, but, knowing that glazes are sensitive and each type becomes soft at a different temperature, we realize how important each degree is for satisfactory annealment of the

decoration. Hard porcelains require a firing up to cone 013, while a considerable amount of soft glazed ware should not be fired over cone 017. The art bodies produced in hobby studios must be fired much lower, even though decorated with the same colors as the other bodies mentioned.

PERHAPS a description of the various types of ware will be helpful to the overglaze decorator. In any case, an understanding of the terms used is necessary. Porcelain is classified as soft and hard paste. English bone china is halfway between - that is, medium. The term china is used to describe all sorts of semi-soft, soft and hard porcelain. Actually, it would be correct to describe "porcelain dinnerware" only as that which is made of hard feldspathic composition, and to call only bone china by the name "china." Most domestic ware is really not porcelain but china, because it is manufactured by methods different from those used for what was originally called porcelain.

True porcelain is a brilliant, white, translucent ceramic ware. Bone china and soft wares are usually cream colored or ivory. All imported dinnerware can easily be classified; but with

(Please turn to Page 34)

from the HOLST NOTEBOOK-

• Can carbon paper be used for transferring designs to china?

Graphite paper is better—it marks lighter and will not smear. I suggest that you use an agate point or dull-pointed crewel needle instead of a pencil for transferring. You will find it easier to trace the design if it has been drawn in ink; and, if it has been done on regular tracing paper, you can use the design repeatedly.

♣ I outlined my decoration, using a sugar solution of 8 parts sugar and 2 parts black. In firing, the outline cracked and pulled apart. Why?

The formula for the solution is wrong. Use only 1 part

sugar to 7 parts outlining black mineral powder, not by weight but by measure (in measuring spoons). You will have a good permanent black which, when the proper amount of water is added, will flow easily from the pen. The proportion of water can be judged only by experience; it should be enough to give the consistency of ink.

• Why does pink sometimes fire to a rather purplish color?

Pinks fire to true color only when painted in very light washes. Good pinks are very strong gold oxide formulas and

(Please turn to Page 30)



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PORCELAIN

(Begins on Page 14)

a. Ball Clay.

b. Bentonite: exceedingly fine in grain, bentonite is useful in throwing bodies. Some bentonites contain iron so, if whiteness is an aim, it should be added in amounts not exceeding 1 per cent. Aside from this coloring effect, not more than 2 to 3 per cent should be used because the fineness of the grain can impede the drying and the loss of the chemically combined water during firing and cause undue warpage. Bentonite should not be used in casting bodies for it can eventually clog the pores of molds, retarding absorption.

c. Organic plasticizers (such as those based on lignin extract, wax emulsions and synthetic gums): water soluble plasticizers usually are not used in casting bodies because they can work out into the molds, making them impervious to casting slip water. Since organic plasticizers fire out in the kiln, they have no effect on body color or firing temperature.

d. Milling: the non-plastic portions of porcelain bodies are often ballmilled in industries. The process decreases the particle size, makes the bodies more plastic, and slightly lowers the maturing temperature.

e. Aging in the plastic state for as little as a week's time can have a beneficial effect: the longer the aging continues, the better for plasticity.

While taking these four requirements-whiteness, maturity, translucency and plasticity - into account, the potter attempting to fabricate his first porcelain body needs a little more solid information if he is to know where to begin. Bodies which have worked well are therefore given below.

Specific types and brands are not listed because two studios rarely have the same materials and because the body suggestions are for experimentation. The potter is advised to use materials at hand rather than buy new ones. The fired quality of a body provides the basis for evaluation, and it is very possible the materials you have will be satisfactory. For example: Georgia or Florida Kaolin or English China Clay may be used for kaolin, but if you already have kaolin and don't know just what type it is, use it. Feldspars which may be used include Buckingham, Godfrey and Nepheline Syenite, but if you have some other spar, use it, then judge from fired results whether you need a harder or softer spar. Tennessee Ball #5 and Victoria, suggested as light-firing, do not exclude the use of other ball clays.

The following batches are on a percentage basis, the total being 100.

BODY A. CONE 12-14	
Kaolin	47%
Feldspar	25
Flint	28
BODY B. CONE 12	
Kaolin	25%
Feldspar	25
Flint	30
Whiting	20
BODY C. CONE 12	
Kaolin	35%
Feldspar	25
Flint	25
Ball Clay	15
BODY D. CONE 10	
Kaolin	48%
Feldspar	30
Flint	22
BODY E. CONE 10	
Kaolin	36%
Feldspar	30
Flint	20
Ball Clay	14
	14
BODY F. CONE 10	2001
Kaolin	30%
Feldspar	35
Flint	24
Whiting	1
Ball Clay	10
BODY G. CONE 10	
Kaolin	25%
Feldspar	2.5
Flint	25
Ball Clay	25
BODY H. CONE 9	
Kaolin	5%
Feldspar	42
Flint	29
Whiting	14
Talc	4
Zinc oxide	6

PODY A COMP 12.14

Porcelain bodies are usually de-occulated with ease. Body "G", for flocculated with ease. Body "G". example, will make an excellent casting slip with the addition of 40 per cent water, 0.15 per cent sodium silicate and 0.15 per cent sodium hydroxide. Its drain casting time is approximately 7 minutes, and when fired to maturity (cone 10) it has an absorption of 0.5 per cent, shrinkage of 12 per cent, and good translucency. If 1 per cent bentonite is added to Body "G", it may be used for throwing or jiggering. Other body sources may be found in various texts on ceramics.

Cleanliness is extremely important when working with porcelains. The most unexpected sources may offer contamination: rust on tools or containers, iron or other impurities in mixing water, red clay dust in the air-all can be troublesome.

REGARDING GLAZE preparation, the question may come up: should the glaze be ball-milled, ground in a mortar, or merely dry-mixed and (Please turn to Page 28)



answers to questions

CONDUCTED BY KEN SMITH

Q. If a piece of greenware has been stored for several years, can it be glazed and fired without breaking? Should it first be placed in a damp box for a while?

A. A piece of dry greenware is ready for firing at any time regardless of how long it has been stored. If the piece is finished, it should not be put into a damp box but kept dry, and either single fired with glaze or merely bisque fired. Be sure to go over the piece carefully with a damp sponge to remove dust and other accumulated surface dirt in order to avoid glaze defects.

After finishing a piece it would be safer to bisque fire it before storing because of the fragile nature of unfired

Q. What is the proper position for a cone when it is "down." Is it lying down flat, bent halfway over, or just starting to bend?

A. If a kiln has been properly fired, the cone is down when it has bent over in a smoothly curved arch and its tip is parallel to the top of the plaque in which the cone is embedded.

(In the "New and Useful" column, this issue, cones in various positions are shown. In the foreground, the third cone from the left is in the proper down position. The two warning cones to the left are, of course, overfired. The cone at the far right is not yet matured.)

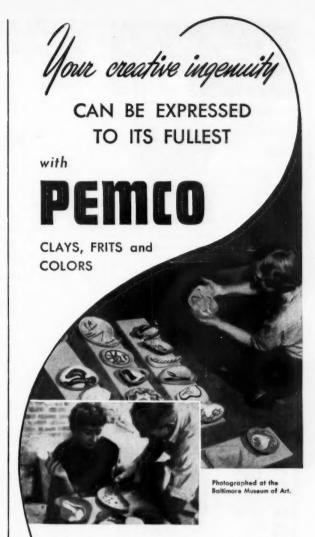
Q. When I fire a kiln-load of pieces glazed with different glazes, the clear-glazed pieces sometimes turn a slightly reddish tan. Can you tell me what causes this and how to avoid it? I have tried separating the clear-glazed pieces from the "antique" glazes; however, it hasn't helped. I use prepared glazes and fire at cone 06.

A. I believe your difficulty stems from chromium vapors. Your clear glaze probably contains zinc, and your "antique" glaze probably contains chromium. During the firing, enough chromium is transferred by vapor to the clear glaze to produce the typical zinc-chrome tan you describe.

You can check this by mixing about three parts of your clear glaze to one part "antique," firing it on a small test tile. If my diagnosis is correct, the test tile should come out a strong tan, and the only remedy would be to fire your clear glazes separately.

Incidentally, if you are using a kiln with ni-chrome elements, there is a possibility that the pieces placed close to the elements will show the tan discoloration, due to slight volatilization of chromium from the elements.

Direct your inquiries to Questions Editor, "Ceramics Monthly," 3494 N. High St., Columbus 14, Ohio. Please enclose a stamped reply envelope. Questions of general interest will appear in this column.



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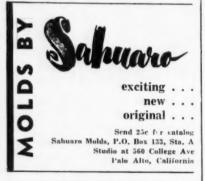
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PORCELAIN

(Continued from Page 26)

wet-screened? The answer depends on the condition of the materials at hand and the effects desired. Since most of our materials reach us in fine particle size, milling is not usually essential from the standpoint of grinding them. If colorants are present in the glaze. however, it may be desirable to hand or mill grind the batch; otherwise, color will be speckled, rather than evenly distributed.

Many potters do not grind glazes, preferring the more casual interfusion of the materials which frequently results in a more pleasing visual surface texture.

The studio potter who is beginning to explore porcelains may find the following six glaze recipes helpful. Allof them are cone 8-10, and the figures given are batch weights. Glazes A, B, D, and E are colorless bases which may be used for color developments.

GLAZE A. WHITE GLOSS

														parts
Buckingham	1	60	2	d	SI	7	ar							171.3
Florida kao	li	n												10.8
Zinc oxide													×	16.2
Colemanite		*	*		*				×		,	*		51.5
Dolomite .														13.8
Whiting						,	*			,	,			17.5
Flint				×									×	83.3
Rutile								×						10.9

GLAZE B. SEMI-MAT

																				parts
#56	Glaze	2	sr	oa	ır				•											128.5
Tenn	essee	b	a	11	,	cl	a	y		#	5									22.7
Colen	nanit	9						*					*							36.1
Dolor	nite							Ä				*								23.0
Talc																				44.1
Flint			,						,					,						59.9
G	LAZ	F		0			-	0	0	11	D	p	F	F	,	1	R	ī	1	IF

	part
#56 Glaze spar	136.2
Whiting	64.3
Borax	44.9
Flint	124.3
Copper carbonate .	27.
GLAZE D. S	OFT MAT

parts Buckingham feldspar 46.8 Godfrey feldspar 45.5 Zinc oxide 56.2 Whiting 17.9 Flint 26.3

Rutile 7.1 GLAZE E. CRACKLE

	parts	
Buckingham feldspar	101.6	
Florida kaolin	76.4	
Whiting	18.5	
Cryolite	29.4	
Bone ash	13.1	
Lithium carbonate	22.2	
Flint	33.3	

GLAZE F. LOCAL REDUCTION COPPER RED*

parts
Nepheline syenite126.1
Florida kaolin 16.0
Zinc oxide 16.4
Whiting 42.6
Talc 12.5
Flint 84.3
Tin oxide 1.8
Silicon carbide (600 mcsh) 1.2
Copper carbonate 1.8
*for a reduced iron glaze, use 1-1.5%

iron oxide in place of copper. Porcelain ware is often once-fired. When the glaze is to be applied to green ware, the addition of a binder is helpful. It not only decreases the amount of water needed to make the glaze workable, but also acts to bind the glaze particles together before firing, giving a harder unfired surface for easy handling. Commercially available organic binders, gums, starches, glues,

Epsom Salts, or vinegar may be used.

DURING FIRING, a fine porcelain body is inclined to deform because of its glassy structure. For this reason, porcelains are usually fired dry footed: that is, no glaze is put on the foot of the ware and stilts are not used. It will be apparent that if the ware were thin and the body glassy at maturing temperature, forms - especially flat forms - could sag on to stilt points.

Smooth and evenly set kiln shelves are essential. They should be covered with kiln wash (equal parts of fire clay and flint; or of fire clay, ball clay and flint for lower temperatures) so that glaze droppings or stuck ware can be removed with least damage to both ware and shelves. If you have badly warped or bumpy shelves, it may be advisable to set the ware in sand or flint, provided the body is not so glassy that the setting material will fuse to it.

Slow firing and a little soaking (maintaining top temperature) are generally considered to be conducive to developing porcelain bodies and glazes. This, however, is something the individual potter has to work out for himself. Kilns have personalities, much like potters, and each needs understanding

and sometimes patience!

It may be said that more self-discipline on the part of the potter is required for work with porcelains than is needed with lower-temperature and less pure clay bodies, but don't be intimidated by the aura of preciousness and unattainability which has often been assumed as porcelain's right. It is an other material requiring consideration just as any material does-nothing more. The material in itself is not important, but what the creator does with it is of utmost importance!



ceramic counsel

About Pyrometers

We discussed pyrometric cones in the March issue, giving some of the advantages of their use and stressing that they measured total heat-work rather than temperature. Cones are of greatest service, in the final stages of firing, to indicate the maturation point of the ware. They are of no value, however, for checking on the progress of heat advance in the early stages before incandescence has been reached. Even the lowest cone, 022, does not operate until there is some light in the kiln. For measuring the sub-incandescent progress of the firing, a pyrometer is required, and there are two general types-the optical and the thermocouple.

The optical pyrometer is a portable device consisting of a telescope-like tube which has an eye-piece and contains a wire filament. The tube is aimed at the interior of the kiln, and an electric current is made to pass through the filament, heating it to incandescence. When the incandescence of the filament exactly matches the light emitted from the kiln's hot interior, the amount of current required (in milli-amperes) is read on a dial and this reading is then transposed into Centigrade or Fahrenheit degrees by means of a standard table. This type of pyrometer has two disadvantages. First, like the pyrometric cone, it cannot operate below the range of incandescence and, second, the readings will be somewhat affected by the type of surface at which it is aimed. If the device happens to be directed at a piece covered with glistening, molten glaze, the same reading will not result as would be obtained if the pyrometer were aimed at a piece of glowing bisque ware.

The second type, a thermocouple pyrometer, depends on the fact that if two wires of dissimilar metals are joined at one end and this joined end is then heated, a small electric current is

generated which may be measured by an instrument connected across the cold ends of the wires. This arrangement of dissimilar metal wires is called a thermocouple. The current generated is proportional to the difference in temperature between the hot and cold ends of the wires, and can, therefore, be transposed directly into temperature readings. In use, the thermocouple is usually encased in a protective porcelain tube and is mounted as an insertion through a small opening in the door or wall of the kiln, protruding several inches into the kiln's interior. Since this type of pyrometer functions at low, sub-incandescent temperatures as well as at high ones, it can be of great service in helping to control the early progress of firing. Thermocouples may be permanently mounted in several parts of a large kiln and readings taken on a single instrument dial by means of plugs or switches. A system of this kind permits the operator to detect those areas in his kiln which are lagging behind or becoming too hot, and he can take steps to correct the situation.

Pyrometers are invaluable in controlling the heat in enameling kilns where it is desired to maintain constant temperature. The simplest set-up would consist of a thermocouple connected to a pyrometer dial, the enamelist increasing or decreasing the heat supply according to the indicated temperature fluctuations. A much more elaborate arrangement can be obtained which allows the operator to set a pointer at a desired temperature and have the instrument automatically maintain it.

Those who may wish to depend on pyrometers without using pyrometric cones as an adjunct would do well to remember that the pyrometer is a temperature measuring instrument and makes no allowance for the time factor. The heating elements in electric kilns may change over a period of use and may require a longer time to reach a given temperature, though the total heat-work supplied may be greater. Remember, also, that thermocouples need periodic checking and calibration to insure accuracy since they, too, may deteriorate through abuse or extended use. SATISFACTION GUARANTEED OR YOUR MONEY BACK

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HOLST NOTEBOOK

(Begins on Page 25)

develop good pure color if not painted too heavily. When underfired, they turn brownish. Remember that mineral china paints are transparent colors, and apply all pinks, rose and purple with caution. For depth in tone, these colors take repeated painting and firing.

◆ When an unglazed, bisqued porcelain body has been used for decorating with china paints, little black spots sometimes develop when the piece is fired. Why does this happen and can anything be done about it once it has occurred?

The condition, called "peppering" or "mildew," is the result of foreign matter having settled in the porous body during the firing. It can also happen to a glazed piece that has weak spots. In the decoration firing, a prolonged venting period is essential to be sure that all volatile oils have burned out and escaped before the kiln is closed. Many ceramists, using electric kilns, complete the entire firing without closing the top vent (peephole). Since I have not heard of anyone having peppering problems from a forceddraft kiln, I consider venting to be most important. Many craftsmen think the use of turpentine in decorating causes the condition, but I am more inclined to think that the widespread use of fat oil mediums is responsible. Heavy vehicles used in painting are absorbed by the bisque and do not burn out easily. The only cure, once peppering has occurred, is refiring and redecorating: the bisque refiring will burn out the spots-and also the color, so you will have to redecorate the piece.

• What is the difference between oil of turpentine and spirits of turpentine, and which is preferable for use in overglaze decorating?

The difference between the two is a question for the chemist, but I do know that in use there is a decided difference. In overglaze decorating, use only pure spirits of turpentine, both for painting and cleansing purposes. Fat oil, which some artists use as a medium, is made from oil of turpentine. Avoid such a vehicle because it is one of the causes of blistering in firing.

For burnishing gold, is there any advantage in sand as compared with a spun-glass brush?

Burnishing sand gives a more brilliant polish but several coats of the gold (repeated firings) have to be applied in order to produce a base strong enough to withstand such harsh polishing. The spun-glass brush is usually preferred for a softer sheen; and a final rubbing with jewelers' rouge is good, especially on dinnerware. Both Roman and unfluxed gold should be burnished after each firing, so if either is to be sand burnished it should be done only after the last firing. Use an agate burnisher on the edges of dishes

◆ What causes some china paints to come out of the kiln dull looking, with little or no gloss? Some browns, especially, fire this way.

Underfiring can give you dull colors. You should refire before retouching, but I cannot advise what cone temperature to use unless I know the type of ceramic ware you have decorated. The firing chart given in this issue [page 34] will help you. As for browns, be sure to use the best quality. Synthetic browns are weak in mineral oxides and have too small a flux content to produce a satisfactory gloss when fired.

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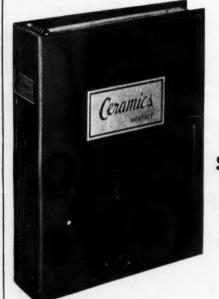
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suggestions

from our readers

Use an Alarm Clock

By keeping a written firing schedule, I can estimate the time when the cones will go



down and I set an alarm clock for the approximate time. This climinates the horrible possibility of forgetting that the kiln is on!

-(Mrs.) Douglas Berry Plymouth, Mich.

Nylons for Clean-up

For cleaning up greenware, try using nylon net or nylon tulle. Wrap a scrap of the nylon around your finger and use a rotary motion. The nylon net is coarse enough to use on heavy seams. The nylon tulle, or an old nylon stocking, provides just enough abrasivness for that final clean-up. I find this vastly superior to sandpaper or steel wool.

Doris Windham Moultrie, Ga.

Tile Firing Rack

A firing rack, which will enable you to place your tiles



vertically in the kiln, will help you conserve kiln space and give you better firing results. You can get better heat distribution through the kiln than if the tiles were stacked horizontally on closely spaced kiln shelves.

I use an insulating firebrick and porcelain tubes to build the rack. Cut a brick lengthwise into two equal parts and insert the tubes at a slight angle. One brick can easily accommodate nine tiles.

This method of firing the tiles vertically is not recommended, of course, for glazes which flow to any degree during the firing.

-Albert McKiernan Culver City, Calif.

Match-stick Tools

When modeling very small objects, such as jewelry and small figures, most tools seem large and awkward. You will find wooden match sticks to be very helpful.

One match stick sharpened



to a point, another rounded with sandpaper, and another cut square with a razor blade will make versatile and handy tools.

Snip a small piece from a large sheep's wool sponge and use this for finishing. The tools and sponge fit neatly into a penny match box.

-(Mrs.) Douglas Berry Plymouth, Mich.

Copper Screens

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(Mrs.) Howard Morgan Niagara Falls, N. Y.

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OVERGLAZE DECORATION

(Begins on Page 25)

our domestic ware being so varied in composition and method of manufacture, and each manufacturer calling his product "china," it is difficult sometimes to decide in which category each product should be placed. Our domestic Belleek, for instance, is made mostly from cone 6 composition and is soft, while the old imported Belleek is somewhat harder, but still a soft porcelain. American household china has a body similar to hard porcelain tableware but a glaze comparable to bone china. Quite often it is too heavy for a china painter's use, and, if overfired, will come out rough looking, as though having a salt deposit.

Satsuma, a crackle ware, is so soft that it must be classified with cone 06 pottery. Nothing surpasses Satsuma for decorating with enamels, and today we have a very fine domestic copy of this old ware. Low fire art bodies can be china painted with close effect to the old pottery technique; pure porcelain dinner ware requires a different method of design decorating. We also know that overglaze painting is much more brilliant on soft porcelains than on hard porcelains, because the softer glaze is

more receptive.

To know and appreciate the assortment of ceramic ware that is available to suit your needs and artistic efforts is not enough. You must, in order to follow the temperature firing chart, he able to recognize the difference between soft, medium and hard paste ware. You might make the following tests. Soft porcelain can be scratched with a file. On hard porcelain, the foot is generally rough and unglazed. A fracture test on hard paste ware will show a glassy look all through, because the glaze passes into the paste in the making. The same is true of bone china, so you must distinguish these two by difference in color. A broken piece of soft paste has a dry-chalk look and the glaze is separated from the paste. Soft ware is generally a mellow ivory by transmitted light, and this is especially true of bone ware. The hard paste tends toward bluish shades in the glaze.

And so we come to the point of three classifications for porcelain: 1. hard paste, having a higher resistance to heat, a close compact texture, complete vitrification, translucency, and a comparatively unsympathetic glaze for painting; 2. bone china, having the durability of hard paste, and the soft quality of glaze conducive to painting; 3. soft paste, having a finer whiteness

of body, although sometimes creamy in tone, and usually of great translucency.

Category 4—art bodies and pottery—is the most difficult temperature range to control. The very soft glazes are so sensitive that great care must be taken not to overfire. Crackles and slurring will result from overfiring, and the colors will sink into the glaze until you have a creamy or foggy look on top. Do not be misled by the common notion that china paints must be fired at cone 018. I must repeat that this is not true!

STUDY, and adhere to, the following chart for firing, and you will no longer question why colors have a faded or dull look, or have trouble with under- or overfiring. Taking for granted that the decoration has been painted properly, you should have no ruined pieces.

(1) Hard porcelains
Overglaze fire at cone 014 to 013.

Includes all hard paste porcelain ware such as German, Bavarian, French, Japanese, and Czechoslovakian; also English that is not bone china and some domestic ware.

2) Medium pastes Overglaze fire at cone 016 to 015.

All bone china, including most of the English ware and some domestic ware.

(3) Soft pastes
Overglaze fire at cone 018 to 017.

Much domestic ware and all cone 6 bodies and semi-porcelains, Irish and domestic Belleek and some French china.

(4) Art bodies and pottery
Overglaze fire at cone 020 to 019.

All cone 06 clays including majolica glazes and kindred bodies; imported and domestic Satsuma.

You will notice that two pyrometric cone numbers are given for each of the four categories on the firing chart. This is to assure safety in firing. The first cone number is the test cone. After it goes down, watch closely for the second cone to bend over for the maturing temperature, and turn kiln off immediately-do not let this cone flatten. A soaking period of heat will follow, so do not overfire. Another caution here is never to open more than one peephole at a time to take a look for it will create a draft. Watch the test cone first, and forget the other until the test cone is bent.

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(Begins on Page 8)

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itinerary

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Building. To be on display at Public Library, Lockport, N.Y., April 26-27.

OHIO. Cincinnati

April 24-29

Geramic Guild of Cincinnati sponsors Greater Cincinnati Ceramic Show. At the Alms Memorial Building of the University of Cincinnati.

Оню, Toledo May 2-30

Ceramics and other crafts included in 36th Annual Exhibition of Toledo Area Artists at Toledo Museum of Art. Fourteen counties represented.

SOUTH CAROLINA, Columbia April 4-25

American Craftsmen exhibition at Co-lumbia Museum of Art, 1112 Bull St. More than 100 examples of ceramics, enamels, silversmithing and other work by outstanding contemporary craftsmen. Sponsored by Smithsonian Institution.

Washington, Seattle through April 7

Northwest Craftsmen's Second Annual All-Crafts Show at the Henry Gallery, University of Washington. Pottery, enamel and ceramic sculpture included in exhibition which represents Idaho, Montana, Oregon, Washington and British Columbia craftsmen.

WEST VIRGINIA, Huntington

April 11-May 2

Work of artists and craftsmen in Huntington area shown in second an-nual Exhibition 80 at Huntington Galleries, Park Hills.

SUPPLY AND EQUIPMENT SHOWS

Each year, the firms which manufacture, distribute or sell supplies used in the ceramic craft, display their products at extensive exhibitions in various sections of the United States. These shows constitute a the United States. These shows constitute a market-place where dealers, ceramists and the general public may see and examine kilns, molds, glazes, tools and innumerable other types of equipment and supplies. To help CM readers keep up-to-date with the working materials that are available, six such scheduled shows are listed below:

Midwestern Ceramic Hobby Show at Cleveland Auditorium, Cleveland, O.

May 15-16

Iowa Midwest Ceramic Show at Masonic Temple, Waterloo, Iowa.

May 19-23

Great Lakes Ceramic Exhibition at Masonic Temple, Detroit, Mich.

Eastern Ceramic and Hobby Show at Convention Hall, Asbury Park, N. J.

June 23-26

Southwest Ceramics and Hobby Show at Fair Park, Dallas, Texas.

July 28-August 1

California Ceramic Hobby and Gift Show at Municipal Auditorium, Long Beach, Cal.

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SHOW TIME

(Begins on Page 15)

Bastigne believes that ceramic art has recently taken a new lease on life. "The most famous artists, painters or sculptors do not think it beneath their dignity to tackle the innumerable problems set forth by clay, glazes, and fire. This renewed interest in an art as old as mankind has already given birth to a large and diversified production—in fact, so vast and so different from the past, technically and artistically, that the time has come to compare the individual production from country to country."

The ceramic craft in the United States shows intensive development and draws an increasing number of followers, Bastigne observed. He feels that our work has personality and vitality, and the meeting of American and French ceramics should bring forth interesting results.



DELPIERRE: Woman bottle

Miami Group Exhibit



CERAMIC LEAGUE of Miami recently held its fourth exhibition of work by the members. Pieces that won the awards are shown above: ceramics first—brown bottle form by Junita May; second—low glazed bowl by Barbara Garrett; third—tile panel by Kay Pancoast. First in sculpture—Horse by Miska Petersham; second—Two Little Girls by Dorothy Phillips.

Enamels first—copper card tray (right fore-ground) by Juanita May; second — silver cloisonne pendant by Rosalie Brown; third—free form copper tray (center) by June Knouse. The League, an active, enthusiastic organization, last summer sponsored an open competition show which drew more than four hundred ceramics and enamels from ten states.

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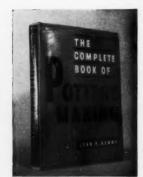
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